

Fundamental understanding of biodegradability

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These days conventional plastics and their potential environmental effects are often discussed in public debates. Biodegradable plastics could represent a valid alternative in certain applications, offering new end of life options as part of a circular economy approach to close the nutrient loop (see figure 1). Nevertheless stakeholders (e.g. politicians) ask the question: based on scientific evidence, is it possible to undoubtedly prove that biodegradable materials are truly biodegradable? Some years ago BASF has started a scientific journey to give an answer to this question. Together with partners, such as ETH Zürich and HYDRA Marine Sciences Institute, BASF started investigating in a systematic and fundamental way the biodegradation process of biodegradable plastics in different environments: industrial and home composting, anaerobic conditions, soil, limnic and marine habitats. The presentation will give an overview of the scientific methods developed so far to understand the interaction between materials, abiotic and biotic (microbes, enzymes) factors and the correlation between laboratory test and field trials.

Figure 1: The circular economy vision with use of biodegradable and biobased materials – how to close the nutrient loops

